



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,409	02/25/2002	Douglas B. Dority	020048-002000US	8156

7590 02/18/2010
Chun-Pok Leung
TOWNSEND and TOWNSEND and CREW LLP
8th Floor
Two Embarcadero Center
San Francisco, CA 94111-3834

EXAMINER

NAGPAUL, JYOTI

ART UNIT	PAPER NUMBER
----------	--------------

1797

MAIL DATE	DELIVERY MODE
-----------	---------------

02/18/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/084,409	Applicant(s) DORITY ET AL.	
	Examiner JYOTI NAGPAUL	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,11-16,27 and 34-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 11-16, 27 and 34-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment filed on November 30, 2009 has been acknowledged. Claims 1, 4-9, 11-16, 27 and 34-45 are pending.

Response to Amendment

Rejection of Claims 1, 12, 26-27, 30-32, 34-37, 42-43, 46 as being anticipated by Gundelfinger (US 4068528) has been withdrawn in light of applicants' amendments.

Rejection of Claims 2-11, 13-16, 28-29, 33, 47-48 as being unpatentable over Gundelfinger in view of Sakai (US 4937048) has been withdrawn in light of applicants' amendments.

Rejection of Claims 38-41 as being unpatentable over Gundelfinger in view of Lecerf (US 4705059) has been withdrawn in light of applicants' amendments.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 12, 14, 15, 27, 34, and 42-44** are rejected under 35 U.S.C. 102(b) as being anticipated by Nichols (US 6012488).

Regarding claim 1, Nichols teaches a fluid control and processing system comprising a housing (refer to figure below) having a plurality of chambers (refer to figure below). The system further comprises a valve body (32 and 64) received in the housing (refer to figure below). The valve body (32 and 64) comprising a fluid

Art Unit: 1797

processing region (refer to figure below) continuously coupled fluidically to a fluid displacement region (refer to figure below). The fluid processing region is contained within a disk portion (64) of the valve body (32 and 64), and the fluid displacement region (refer to figure below) is contained substantially within a tubular portion (32) of the valve body (32 and 64). The fluid displacement region being depressurizable to draw fluid into the fluid displacement region and pressurizable to expel fluid from the fluid displacement region. The valve body (32 and 64) including a plurality of external ports (refer to figure below). The fluid processing region (refer to figure below) being fluidically coupled with at least two of the external ports (refer to figure), the fluid displacement region being fluidically coupled with at least one of the external ports. (Refer to Figure below) The valve body (32 and 64) being adjustable relative to a plurality of chamber ports (refer to figure below) to allow the external ports to be placed selectively in fluidic communication with the plurality of chambers. (Refer to figure below) The system further comprises at least one of the plurality of chambers is a processing chamber different from said fluid processing region. (Refer to Figure) The processing chamber (refer to figure) including a first chamber port (refer to figure) and a second chamber port (refer to figure) for selectively communicating with at least one of the external ports (refer to figure) of the valve body (32 and 64). Applicants further recite "The processing chamber contains a fluid processing material which is an enrichment material that captures a target from the fluid sample, or a trapping material that traps unwanted material from the fluid sample." This limitation is considered an intended use limitation, which does not further delineate the structure of the claimed apparatus from that of the

Regarding claim 12, the external ports are disposed on a generally planar external port surface (face of 32) of the valve body (32 and 64), and wherein the valve body (32 and 63) is rotatable around an axis and relative to the plurality of chamber ports (refer to figure above) to allow the external ports to be placed selectively in fluidic communication with the plurality of chambers. (Refer to figure above) The axis is perpendicular to the external port surface (face of 32) and the external ports being spaced from the axis by a common radius. (Refer to Figure)

Regarding claim 14, the processing chamber includes a processing module containing the fluid processing material. (Refer to claim 1 above)

Regarding claim 15, the processing chamber further includes a collection area (detector) and a spout (24) for directing the fluid into the collection area (detector).

Regarding claim 27, the valve body (32 and 64) is adjustable with respect to the housing (refer to figure above) to close the external port so that the fluid displacement region and the fluid processing region are fluidically isolated from the chambers (Refer to Figure above).

Regarding claim 34, applicants further recite "the fluid displacement region is depressurizable by increasing in volume and is pressurizable by decreasing in volume." This limitation is considered an intended use limitation, which does not further delineate the structure of the claimed apparatus from that of the prior art. Since these claims are drawn to an apparatus statutory class of invention, it is the structural limitation of the apparatus, as recited in the claims, which are considered in determining the patentability of the apparatus itself. A recitation of the intended use of the claimed

Art Unit: 1797

invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Nichols teaches a source of pressurized solvent is delivered to the valve. (Refer to Col. 2, Lines 44-46) The structure of Nichols is capable depressurizable by increasing in volume and is pressurizable by decreasing in volume.

Regarding claims 42-44, the valve body (32 and 64) includes a crossover channel (62), the valve body being adjustable with respect to the housing to place the crossover channel in fluidic communication with an aspiration chamber (the chamber that leads to detector) and a source chamber (one of the chambers in the figure above leading to 62) to permit aspiration of a fluid from the source chamber through the crossover channel to the aspiration chamber. (Refer to figure above) The crossover channel (62) is a circular arc lying on a common crossover channel radius from the axis. (Refer to Figure above)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1797

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. **Claims 4-9, 11, 13, 16 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols in view of Anderson (US 5273656).

Refer above for the teachings of Nichols.

Nichols fails to explicitly teach the fluid processing material comprises at least one solid phase material selected from the group consisting of beads, fibers, membranes, filter paper, glass wool, polymers, and gels. The fluid processing material comprises a filter and beads. The fluid processing material comprises at least two types of beads. The at least two types of beads perform at least two different functions which are selected from the group consisting of cell capture, cell lysis, binding of analyte, and binding of unwanted material. Nichols does teach a system for separating compounds by HPLC. Nichols further fails to teach the fluid processing material comprises at least

Art Unit: 1797

one liquid phase material selected from the group consisting of ficoll, dextran, polyethylene glycol and sucrose. Nichols further fails to teach the fluid processing material is contained in the fluid processing region by one or more frits.

Anderson teaches a rotating system for performing solid phase reaction involving the use of solid phase particulate beds or phase reactions to accomplish separations, purification, biopolymer synthesis or enzyme reactions. (Refer to Col. 1, Lines 1-12) Anderson teaches using fluid processing materials to accomplish the above functions. The fluid processing materials comprises filter and beads. (Refer to Col. 1, Lines 23-29 and Col. 6, Lines 49-56) Anderson further teaches the fluid processing material comprises at least one liquid phase material selected from the group consisting of ficoll, dextran, polyethylene glycol and sucrose. (Refer to Col. 23, Lines 59-60) Anderson further teaches that the rotors containing filters or frits. (Refer to Col. 6, Lines 49-56)

It would have been obvious to one having ordinary skill in the art to provide a fluid processing material such as a filter and beads as disclosed in Anderson to achieve the predictable results to achieve efficiency and high resolution with solid phase supports.

It would have been obvious to one having ordinary skill in the art to provide the fluid processing region of Nichols with a frit as disclosed in Anderson to achieve the predictable results of efficiency and high resolution with solid phase supports.

7. **Claims 35-37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols in view of Loewy (US 6387710).

Refer above for the teachings of Nichols.

Nichols fails to teach a fluid displacement member disposed in the fluid displacement region (refer to figure above), the fluid displacement member being movable to adjust the volume of the fluid displacement region. The fluid displacement member comprises a piston moveable in a linear direction in the fluid displacement region.

Loewy teaches fluid control system comprising a fluid displacement member (piston 170) and movable in a fluid displacement region (160) in a linear direction in order to precisely manipulate fluids into the system. (Refer to 2D)

It would have been obvious to one having ordinary skill in the art to provide a piston as disclosed in Loewy moveable in the fluid displacement region of Nichols to achieve the predictable results of precisely manipulate fluids in and out of the system.

8. **Claims 38-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nichols in view of Lecerf (US 4705059).

Refer above for the teachings of Nichols.

Nichols fails to teach a transmitting member coupled with the fluid processing region for transmitting energy.

Lecerf discloses a fluid dispensing device. The device comprises an energy transmitting member (14) coupled to the fluid processing region (12) through a cover (12). (Refer to Figure 8)

It is well known in the art of ink jet printing to use ultrasonic transducers to use ultrasound to move fluid. It would have been obvious to one of the ordinary skill in this art at the time of the invention by applicant to provide a transmitting member such as a

Art Unit: 1797

transmitting ultrasonic energy through the cover into the fluid processing region in order to provide accurate movement of very small quantities of fluid.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 4-9, 11-16, 27 and 34-45 have been considered but are moot in view of the new ground(s) of rejection.

In response to rejections under 35 USC 102 (b), Applicants argue that *Gundelfinger does not teach or disclose a fluid displacement region and a fluid processing region contained within the valve body as currently amended*. Examiner agrees and has applied a new rejection in view of Nichols, refer above. Applicants further argue that *Gundelfinger does not teach or disclose a processing chamber having a fluid processing material as currently amended*. A new rejection in view of Nichols has been applied, refer above.

In response to rejections under 35 USC 103(a), Applicants argue that *Sakai and Lecerf do not cure the defects in Gundelfinger as discussed above*. A new rejection in view of Nichols has been applied in view of the amendments, refer above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 1797

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTI NAGPAUL whose telephone number is (571)272-1273. The examiner can normally be reached on Monday thru Friday (10:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/084,409
Art Unit: 1797

Page 12

/Jyoti Nagpaul/
Examiner, Art Unit 1797